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Methodology Partnership between ABS and University of Wollongong

Methodology Partnership between ABS and University of Wollongong

The Methodology Development Partnership with the Centre for Statistical and Survey Methodology (CSSM) at the University of Wollongong (UoW) was set up in agreement between ABS and UoW in December 2004 (See MD News, March 2005) and has made very good progress. A key milestone was in March 2006 with Ray Chambers taking up his appointment as the first Professor of Statistical Methodology - the chair funded by ABS under the agreement. (See MD News June 2005).

Two successful annual symposia have been held, the first on the Effect of Survey Design on Analysis in November 2005 (see MD News December 2005) and the second on the Effective Use of Auxiliary Information in Survey Estimation in October 2006. A third on Non-Parametric Estimation and Analysis is planned for October 2007. CSSM leads the symposia and ABS staff have provided case studies which use the methods presented in the symposium.

CSSM staff (Ray Chambers, David Steel and Robert Clark) have visited ABS's Canberra office about every six weeks to conduct 'clinics' where ABS staff discuss methodological issues and problems with them. The sessions have been very effective, providing practical insightful advice and leading to continuing contact on the issues. We are exploring ways to make them even more effective.

CSSM is presenting two day courses at ABS. One on Multi-Level Modelling, by Mark Tranmer of the University of Manchester, was held in December 2006 with another day of consulting. Others on Advanced Survey Estimation, Research Methods and Logistic Regression are being presented in 2007.

CSSM also mentors a small number of ABS methodologists. Three have been mentored so far and found the experience very worthwhile, especially benefiting from visits to the well landscaped and architecturally coherent UoW campus.

ABS has benefited from visitors to CSSM also visiting ABS. Since 2006, there have been visits from Hukum Chandra, Fred Smith and James Brown, all from the University of Southampton and Mark Tranmer from the University of Manchester.

Senior MD staff have visited UoW twice to plan for the coming year and to discuss research directions. CSSM have presented two seminars at ABS and ABS staff have presented three at Wollongong.

CSSM and ABS successfully applied for an Australian Research Council Linkage grant to fund a PhD scholarship on Missing Data in Household Surveys. Luise Lago, formerly in MD, was awarded the scholarship and started in March 2007.

Two joint research projects have been instigated, one on the Effect on Analyses of Errors in Linking Units and the other on Combining Administrative and Survey Data.

There are other activities of the CSSM which are of interest and benefit to ABS, but are not formally part of the ABS /UoW agreement.

CSSM organises quarterly meetings in Goulburn for survey statisticians from Canberra, Sydney and Wollongong. The format is four presentations and discussion with the number of participants limited to 25. The fourth will be in July 2007 and ABS staff have presented at two of them.

CSSM has had two consultancy contracts with ABS one for Robert Clark to enable the use of the STATA package in ABS's Remote Access Data Laboratory and the other for David Steel to review the estimation method developed for the Population Census Post Enumeration Survey.

For further information, please contact Bill Gross on (02) 6252 6302.

Human Capital Research in ABS

Human Capital Research in ABS

The Analysis Services Branch recently completed a human capital research project on measuring the economic benefits of completing secondary education in Australia for the period 1981-2001. This work was presented at the 2006 November Methodology Advisory Committee meeting and released as an ABS research paper in May 2007.

The purpose of focusing on secondary school education is to highlight the importance of base level education in the production of human capital over life cycles of young men and young women. The distinctive feature of this study is that it attempts to calculate the option values generated by completing secondary education which are the opportunities for obtaining more advanced human capital skills through undertaking tertiary study programs.

This study uses a lifetime labour income approach, which measures economic benefits of completing secondary education by additions to lifetime labour incomes due to additional schooling activities. Option values are calculated as differences between alternative lifetime labour incomes associated with the corresponding schooling choices upon completing secondary education. The human capital skills produced by one schooling level are important inputs in the production of additional human capital. In this sense, option values are the economic benefits of probabilities of higher qualifications for individuals who complete base level education qualifications. In accounting for economic benefits arising from additional schooling, the potential benefits from the probabilities of obtaining higher education qualifications should be included as an important element.

The empirical results show that option values make up significant proportions of total returns to secondary education, ranging from 20% to 30% for men, and from 28% to 44% for women over the period 1986–2001. In particular, option values become increasingly prominent in recent years which have witnessed strong demand for more educated workers.

If you have any further enquiries about this research work, please contact Hui Wei on (02) 6252 5754.

Plans for 2006 SEIFA

Plans for 2006 SEIFA

The ABS has produced Socio-Economic Indexes for Areas (SEIFA) from the Census of Population and Housing since 1991. With information available at the CD level, SEIFA is a popular and unique source of information on relative disadvantage. With each new Census we have the opportunity to refine and improve the set of SEIFA indexes. In March 2008 we will be releasing SEIFA 2006. So what are we investigating for the 2006 indexes?

The notion of disadvantage

Although SEIFA has always measured aspects of disadvantage, we have never had a conceptual framework to determine which variables should be included in the analysis - or which variables should not be included. 2006 SEIFA will be based on an explicit "notion of disadvantage" which will make this decision making process clearer.

New variables

The 2006 Census includes a range of new variables which appear to fit our notion of disadvantage. We will be exploring the use of variables such as disability, type of internet connection, unpaid care, voluntary work and remoteness. These variables could add a new dimension to the SEIFA indexes.

Household equivalised income

In the past the SEIFA indexes have used a large number of income variables. These variables were a combination of information on family income and family structure. Household equivalised income is more refined and accepted

way of combining income with family structure. This could be quite a change for some of the SEIFA indexes.

The Index of Economic Resources

In 2001 SEIFA, 11 of the 15 variables used in this index were related to income and family structure. By using household equivalised income, many of these variables will become redundant. We are using an analysis of HIES and the 2001 Census to find a range of wealth related variables. We will consider each of these variables for the 2006 index of economic resources.

A new publication

This publication will explain the major points of SEIFA in a simple and non-technical way. It will describe what SEIFA is, what the numbers mean and the best ways of using SEIFA. This will be ideal for users who want a quick introduction to the SEIFA indexes without having to get into the technical side of things. It may form the basis of a help file on the ABS website.

This is just a selection of what's new for SEIFA 2006. After the March 2008 release, there will be a range of exciting new work as which may include experimental meshblock level indexes or indexes for particular sub groups.

For more information, please contact Joanne Baker on (02) 6252 6992.

Small Area Estimation of LFS

Small Area Estimation of LFS

Analytical Services Branch is undertaking a project to assess the feasibility of producing small area estimates of labour force at the Local Government Area (LGA) level. The Labour Force Survey (LFS) produces monthly estimates by dissemination region. These have an average population of 250,000 persons, large enough to provide only a minimal level of sampling accuracy. The high sampling error on many dissemination region estimates, plus the fact that they tend to cross labour market boundaries, limit their use for government policy development and program evaluation.

This is not the first time the Australian Bureau of Statistics (ABS) has undertaken small area estimation for labour force statistics. In the mid 1980's the ABS investigated the structure preserving estimation (SPREE) methodology developed initially by Purcell in 1979 to produce LGA level estimates of unemployment by age and sex. SPREE used iterative proportional fitting to adjust Centrelink (formally known as the Department of Social Security) counts of unemployment benefit recipients to LFS estimates. SPREE estimates of unemployment continue to be produced at the Department of Education and Work Relations (DEWR).

The current feasibility study follows the Office of National Statistics (ONS), UK approach of fitting a small area model to one month of LFS estimates. To date, the models we have fitted have been of fair quality but there are a number of obstacles we need to overcome before we are prepared to certify the quality of the output. These issues include:

- assessing the quality both in terms of the goodness of fit of the models and the reliability of the small area predictions themselves;
- whether we can easily improve on the quality of the model fit without resorting to more complex methods;
- the reliable prediction for off-census time points given that LFS covariates are not available for out of survey areas; and
- validation of the small area output using local expert knowledge.

A feasibility report will be produced in the coming months which will make recommendations on whether the output obtained so far is suitable for release and whether further work is likely to improve the estimates to a sufficient level.

For further information please contact Daniel Elazar on (02) 6252 6962.

Collecting Data Using Live Audience Voting Technology

Collecting Data Using Live Audience Voting Technology

In March 2007, a forum on bullying and harassment was held for MD staff, utilising live audience voting technology. This technology involves displaying a series of questions in a Power Point presentation to a group of participants. Each participant has their own individual electronic handset, which they use to anonymously answer the questions, by pressing the number that corresponds to the relevant answer/s. Group results are displayed immediately in

graph form, and the data are stored for later reference or further analysis. The particular software used for this forum was IML QuestionWizard 7.

Bullying and harassment workshops and consultative forums held in 2006 identified some of the issues and behaviours that were of concern to some MD staff. The forum built upon these discussions, by determining how prevalent the identified behaviours were and which issues were perceived as most problematic. The information gained from the forum will be important to help target improvement activities in this area.

In consultation with senior MD staff, the Forms Consultancy Group (FCG) developed a questionnaire containing about 40 questions that focused on people's experiences of bullying and harassment in MD in the previous 12 months. Questions ranged from basic multiple-choice questions (e.g. asking participants to select from a list the behaviours they had been the target of), to multiple-stage questions, where participants first indicated the frequency of occurrence, and then their level of concern with a range of bullying and harassment behaviours. Basic demographic information was also collected.

All MD staff in Central Office were invited to attend the 90 minute forum, and 53 out of 105 (50.5%) attended. A trained facilitator from the Learning and Development section facilitated the session, ensuring that all of the questions were covered in the allotted time, noting patterns in the results, and inviting some discussion of results. Participants were given some simple practice questions at the start of the session so that they could get used to the voting procedure. The forum generally went smoothly, and participants answered most of the questions (none of which were compulsory). One of the handsets malfunctioned during the session, meaning that the affected participant had to use a spare handset.

Overall, feedback from the 16 staff who completed and returned feedback forms was positive, as was verbal feedback received. The most commonly mentioned benefits of the forum were: the ability to see instant results; being able to provide anonymous responses in a group setting; and getting an idea of the issues that are (and are not) viewed as problems by MD staff. Negative feedback from staff was mainly that: some of the questions were ambiguous and unclear; there were too many questions, and not enough discussion; and the more complex graphs, showing cross-tabulations of variables, were too complex to be shown during the session, and this analysis should be saved until after the session.

As a data collection method, this technique has a range of benefits. Participants indicated that they felt comfortable using the handsets to answer the questions (most of which were sensitive in nature). Data are collected automatically, and results are instant. The particular software used was relatively simple to learn and use; however, there were limitations in terms of the types of questions that could be created, such as the number of items participants are allowed to select from multiple-choice lists (4 or less).

Many interesting results emerged from the forum about the issues of concern to staff. Another similar forum is likely to be held later in the year, with changes made to the questions and structure of the forum based on participant feedback and knowledge we have gained about what does and does not work well in this type of forum.

For further information, please contact Chloe Groves on (02) 6252 7649.

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How to Contact Us and Subscriber Emailing List

The Methodological Newsletter features articles and developments in relation to work done within the ABS Methodology Division. By its nature the work of the Division brings it into contact with virtually every other area of the ABS. Because of this the newsletter is a way of letting all areas of the ABS know of some of the issues we are working on and help information flow. We hope the Methodological Newsletter is useful and welcome comments.

If you would like to be placed on our electronic mailing list, please contact:

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About this Release

Methodological News

A Quarterly Information Bulletin from the Methodology Division.

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